REMARKS

All amendments made by this response are included in Exhibit A submitted herewith.

Applicant notes the examiner's detailed review of the subject application. Applicant has amended the application as appropriate.

The § 102 Rejections:

Independent Claims 17, 20, 30 and 32 stand rejected as anticipated by U.S. Patent No. 4,988,917 to Cox. Claims 17 and 20, as amended, claim *inter alia*, a "double-ended HID arc tube". Claims 30 and 32, as amended, claim *inter alia*, "a pair of spaced apart coaxial electrodes." There is no disclosure or suggestion whatsoever in Cox of a double-ended arc tube or an arc tube having a pair of spaced apart coaxial electrodes. Cox discloses a single-ended arc tube having parallel electrodes extending through the single end thereof as shown in Figure 1 of Cox. Accordingly, Claims 17, 20, 30 and 32 are not anticipated by Cox. Withdrawal of the rejections is solicited. All claims depending from Independent Claims 17, 20, 30 and 32 are allowable therewith without consideration to the other patentable limitations respectively recited therein.

Independent Claims 3 and 12 stand rejected as anticipated by U.S. Patent No. 5,525,863 to Kowalczyk et al. ("Kowalczyk"). Independent Claims 3 and 12, claim *inter alia*, a "canoe-shaped lower portion." As indicated in the specification, "the term 'canoe-shaped' includes flattened bottoms which are planar, and those which are either a shallow v-shape or arcuate from end-to-end and/or side-to-side." In addition, the term "canoe-shaped" indicates that both ends of the arc tube are narrowed relative to the center of the arc tube. (Specification, page 15).

In contrast, Kowalczyk discloses a "pinched body" arc tube formed by pinch sealing each end of a generally cylindrical glass tube. The resultant arc tube, as illustrated in Figure 4b, does not include narrowed ends, but flat ends having a generally cylindrical chamber therebetween.

There is no disclosure of an arc tube having a "canoe-shaped" lower portion. Accordingly, Independent Claims 3 and 12 are not anticipated by Kowalczyk. Withdrawal of the rejections is solicited. All claims depending therefrom are allowable therewith without consideration to the other patentable limitations respectively recited therein.

Furthermore, Independent Claim 3 recites , *inter alia*, an "upper portion longitudinally conforming generally between said electrodes to the shape of the arc to be drawn between". There is no disclosure in Kowalczyk of an arc tube having such an upper portion in combination with a lower portion having a flattened bottom.

Independent Claim 41 stands rejected as anticipated by U.S. Patent No. 5,525,863 to Kowalczyk. Claim 41 claims, *inter alia*, an arc tube blank comprising "an enlarged light emitting chamber intermediate tubular end portions ..." As discussed above, Kowalczyk discloses a pinched body arc tube formed by pinch sealing the end portions of a generally cylindrical glass tube. The resulting end portions are flat, not tubular, as shown in Figures 4a and 4b. In addition, the chamber intermediate the flattened end portions is not "enlarged" as claimed in Claim 41. Without disclosing the recited limitations, Kowalczyk does not anticipate Claim 41. Withdrawal of the rejection is solicited. All claims depending therefrom are allowable therewith without consideration to the other patentable limitations respectively recited therein.

In addition, Independent Claim 41 stands rejected as anticipated by U.S. Patent No. 866,367 to Edison. Edison discloses a fluorescent electric lamp, and not an arc tube blank as claimed. Moreover, the fluorescent lamp of Edison does not include a chamber having a "lower portion with a flattened bottom" as recited in amended Claim 41. Accordingly, Claim 41 is not anticipated by Edison. Withdrawal of the rejection is solicited. All claims depending therefrom

are allowable therewith without consideration to the other patentable limitations respectively recited therein.

Independent Claims 17, 23, 27, 30, 32 and 37 stand rejected as anticipated by U.S. Patent No. 4,001,623 to Howles et al. ("Howles"). Claims 17, 23, 27, 30, 23 and 37 claim, *inter alia*, an arc tube having a "flattened bottom". Howles, like Kowalczyk, discloses a pinched body arc tube. In Howles, the lower portion of the arc tube is semi-cylindrical, and not flattened (col. 2, lines 24-29 and col. 2, lines 50-51). Accordingly, Independent Claims 17, 23, 27, 30, 32 and 37 are not anticipated by Howles. Withdrawal of the rejections is solicited. All claims depending from Independent Claims 17, 23, 27, 30, 32 and 37 are allowable therewith without consideration to the other patentable limitations respectively recited therein.

Independent Claim 36 stands rejected as anticipated by Howles. Claim 36 requires, *inter alia*, "the radius of curvature of said bottom portion being substantially greater than the radius of said upper portion." There is no teaching in Howles regarding the relative radii of curvature of the upper and lower portions, *a fortiori*, there is no teaching in Howles that the bottom radius of curvature is substantially greater than the upper radius of curvature. Accordingly, Claim 36 is not anticipated by Howles. Withdrawal of the rejection is solicited. All claims depending therefrom are allowable therewith without consideration to the other patentable limitations respectively recited therein.

The § 103 Rejections:

Independent Claim 1 stands rejected as obvious over Howles in view of Kowalczyk. Independent Claim 1 claims, *inter alia*, a horizontally burning, high intensity discharge lamp with an arc tube wherein "the distance at all cross sectional locations between said electrodes between the flattened portion and the axis of said electrodes being less than the distance between

the upper portion and the axis of said electrodes." In Figure 2b of Kowalczyk, the cylindrical upper portion joins the bottom portion at points A, A. At these junctions, R (radius of the upper portion) and Ra (radius of the lower portion) are the same. Accordingly, the distance between the axis of the electrodes and the lower portion is not smaller than the distance between the axis of the electrodes and the upper portion. The teachings of Howles do not obviate the deficiency of Kowalczyk. Therefore, the combination of Howles and Kowalczyk will not produce a horizontally burning, high intensity discharge lamp wherein distance between the axis of the electrodes and the lower portion is not smaller than the distance between the axis of the electrodes and the upper portion at all points between the electrodes. Accordingly, Independent Claim 1 is not obvious over Howles in view of Kowalczyk. Withdrawal of the rejection is solicited.

Independent Claim 2 stands rejected as obvious over Howles in view of Kowalczyk. Independent Claim 2 claims, *inter alia*, a horizontally burning, high intensity discharge lamp with an arc tube that has "a flattened lower portion no part of which is further from the axis of the circle defining the upper portion at the center of the arc tube than the radius of said upper portion defining circle." As disclosed in Figure 2b of Kowalczyk, Ra (the distance from the electrode to the longitudinal zones "A" of the flattened bottom portion) is larger than R (radius of the upper portion). (col. 2, lines 44-49). There is no disclosure of an arc tube where the flattened lower portion is not further from the axis of the circle defining the upper portion than the upper portion is from the axis of the circle defining the upper portion. The teachings of Howles do not obviate the deficiency of Kowalczyk. Therefore, the combination of Howles and Kowalczyk will not produce a horizontally burning, high intensity discharge lamp with an arc tube wherein the distance between the axis of the upper portion and the flattened bottom is not

greater than the distance between the axis of the upper portion and the upper portion. Accordingly, Independent Claim 2 is not obvious over Howles in view of Kowalczyk. Withdrawal of the rejection is solicited.

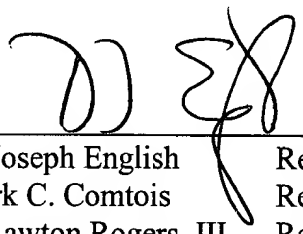
Independent Claim 38 stands rejected as obvious over Kowalczyk. Claim 38 recites, *inter alia,* that "the width of the arc tube at the height of said electrodes at the free ends of said electrodes being approximately 2/3 of the width of the arc tube at the height of said electrodes at the center of the arc tube." Kowalczyk discloses an arc tube (3) having a generally cylindrical chamber (10) as shown in Figures 4b and 4c. (col. 5, lines 26-27). Because of the cylindrical shape, the width of the chamber (10) at all points between end sections (12) is substantially constant. Accordingly, the width of the chamber at free ends of the electrodes and the width at the center of the arc tube are substantially equal. There is no disclosure in Kowalczyk suggesting that the section of the arc tube extending between the end sections (12) is not cylindrical and that the widths at the aforementioned locations are not uniform. Thus there is no disclosure of an arc tube having varying width along its length, *a fortiori,* there is no teaching that one width is two thirds of the other. Accordingly, Independent Claim 38 is not obvious over Kowalczyk. Withdrawal of the rejection is solicited. All claims depending therefrom should be allowed therewith without consideration to the additional patentable limitations respectively recited therein.

Independent Claim 8 stands rejected as unpatentable over Cox in view of Kowalczyk. Cox discloses a single-ended arc tube with hooked electrodes. As disclosed in Cox, the electrodes are hooked to create a gap between the electrode tip and the electrode shaft to stabilize the arc and to prevent the arc from wandering within the tube. Kowalczyk discloses a double-ended arc tube having a pair of electrodes, one sealed in each end of the arc tube. There is no

suggestion or motivation to "hook" the electrodes of Kowalczyk as disclosed in Cox. Because the electrodes of Kowalczyk are disposed in each end of the arc tube and are substantially coaxial, the electrodes may not be functionally hooked as the parallel electrodes disclosed by Cox. Independent Claim 8 is not obvious over Cox in view of Kowalczyk. Withdrawal of the rejection is solicited. All claims depending therefrom should be allowed therewith without consideration to the additional patentable limitations respectively recited therein.

A further and favorable action and allowance of all claims is solicited.

Respectfully submitted,



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